

METHOD AND APPARATUS FOR A CONCEALED MAGNETIC MEMO BOARD

FIELD OF THE INVENTION

The present invention relates generally to memo and/or message board devices and more particularly to such devices that are to be located in concealed spaces.

BACKGROUND OF THE INVENTION

5 Traditional kitchen installations have included appliances, such as refrigerators, dishwashers, etc. that had their front and possibly side surfaces exposed to view. A good number of households, especially those with younger children, often took advantage of these wide open surface areas on the appliances to magnetically affix messages, activity schedules, menus, calendars, artwork and even memo boards themselves to the available exposed
10 surfaces.

More recently, many newer kitchen installations include appliances that are “built in” to the kitchen cabinets. That is, the appliances themselves may include customized wood panels or accessorized doors that allow the appliance to blend in to the cabinetry. In kitchens having this type of appliance installation, there is often no convenient location for hanging or
15 affixing the schedules, messages, artwork and other items mentioned earlier.

In addition, even in those households having traditional appliance installations with exposed metallic doors, some family members do not like the look of having many different items affixed to the appliance in plain view of others. Accordingly, there is a need for a different type arrangement, especially in the kitchen, for displaying family memoranda and
20 artwork in alternate locations to appliance surfaces.

SUMMARY OF THE INVENTION

An advance over the prior art is achieved by providing a magnetically affixable surface in a concealed location, such as, within a kitchen cabinet. In an exemplary embodiment of the invention the magnetic surface includes a number of pages having edges that make up a
5 hinge. The hinge and corresponding hinge pin mount between a top and bottom surface of the cabinet so as to make the magnetic surface rotatable within the cabinet. As such, the apparatus of the present invention can be utilized to display memoranda and artwork in an easy to access, yet out of sight location.

One exemplary embodiment of the invention includes an apparatus for mounting
10 within a cabinet between a door of said cabinet and the shelving found therein. The apparatus comprises at least one rigid sheet of planar material, the at least a portion of said material being attachable by a magnet. A hinge mechanism coupled to the at least one sheet
of rigid material, where the sheet of planar material is sized smaller than an opening within the cabinet. A hinge pin is insertable within the hinge mechanism, the hinge pin being
15 mountable within the cabinet such that the sheet of planar material is rotatable within the cabinet when the door thereto is open.

The invention also includes a method for locating a memo board in a defined space comprising the steps of providing a plurality of rigid planar pages having at least one side being of sufficient magnetic permeability so that a magnet may be attached thereto. The
20 rigid pages having at least one hinge tube coupled to each of the pages where a hinge pin is receivable into the hinge tube of each of the pages. The method includes mounting the hinge pin between a top and bottom member used to define an interior space, where the pages are rotatable on the hinge pin when the interior space is accessible

BRIEF DESCRIPTION OF THE DRAWINGS

A more complete understanding of the present invention may be obtained from consideration of the following detailed description of the invention in conjunction with the drawing, with like elements referenced with like references, in which:

FIG. 1 illustrates a perspective view for one exemplary embodiment of the device of the present invention as mounted within a cabinet;

FIG. 2 is front view for one exemplary embodiment of the present invention;

FIG. 3 is a top plan view for one exemplary embodiment of the present invention;

FIG. 4 is a top plan view of another exemplary embodiment of the present invention;

FIG. 5 shows a detail view for one exemplary mounting methodology used in connection with the present invention; and

FIG. 6 shows an alternate hinge pin design for the present invention.

DETAILED DESCRIPTION

The present invention is a system, apparatus and method for providing a magnetically affixable surface in a concealed location, such as, within a kitchen cabinet. As such, the apparatus of the present invention can be utilized to display memoranda and artwork in an easy to access, yet out of sight location.

Referring to Fig. 1, an exemplary embodiment of a magnetic pages display device 10 in accordance with the present invention is shown mounted within a typical kitchen cabinet 12. As shown, the device 10 is attached to the cabinet 12 between a top surface 14 and bottom surface 16 of the cabinet by way of a hinge 18 and corresponding hinge pin 20. The

cabinet 12 may be any typical cabinet type and size, for example, those type cabinets having a height of between 24 and 42 inches and having a hinged door 22 attached at either side of the cabinet. Vertical edges 24 of the device 10 are generally parallel to the vertical edges 26 of the corresponding opening of the cabinet 12. The device has a height H and length L, where the dimensions of the device are such that the device fits within the corresponding opening of the cabinet so that the device may be manipulated when the door of the cabinet is opened.

As will be described in greater detail, the magnetic pages device 10 includes several pages 28 that are rotatable within the cabinet 12 so that either side of a page may be easily viewed. Although the device is shown as having a hinge mechanism (18, 20) mounted on one side of the cabinet, it would be understood that the device may be mounted on either side of the cabinet or at other locations depending on user preference. In addition, each of the several pages 28 includes a tab 30 so that any information affixed on the device may be easily accessible by category, for example, by family member, activity, type of item to be displayed, etc. It should be noted that the magnetic pages device 10 as shown in Fig. 1 is of a generally thin profile (or width) so that the device when mounted between the top and bottom surface (14, 16) of the cabinet 12, will fit between the door 22 of the cabinet and the shelving 32. (See Fig. 3 which shows a top plan view of the device and which illustrates the generally slim profile P.) If for some reason the profile or thickness of the magnetic pages device is greater than the space between the cabinet door 22 and the shelving 32 (so as to prevent the cabinet door from closing) then the depth of the particular interfering shelves within the cabinet can be reduced.

Referring to Fig. 2, a front view of the magnetic pages device 10 is shown. As depicted, the device includes three separate generally rectangular pages 28 that are either metallic or metallically coated and be of sufficient magnetic permeability so that a magnet 34 or other like magnetic device may be attachable thereon. Some suitable materials for pages of the device would be stainless steel or other metals having sufficient magnetic permeability for magnetic attachment. An exemplary thickness for a metallic page is 18 gauge. As would be understood, more or less pages may also be used. In addition, although the device is shown as having rectangular pages 28, it would be understood that other shapes, such as, circular, elliptical, triangular or even shapes in the outline of a character or other desired object may be used. Generally, the only requirement as to shape would be providing the edge of any shaped page enough length to occupy sufficient hinge area, so as to maintain stability of the device. The pages may be painted in a light color, e.g., white, or be of a "white board" type material so that handwritten messages from a marker or other like writing utensil may be temporarily displayed and erased therefrom and optionally include the magnetic capability. Alternatively, one or more pages (or portions of pages) of the device could include a chalkboard section 36 or be painted with chalkboard paint, and yet still retain the magnetic quality throughout or on only portions of the page.

As shown in Fig. 2, each of the magnetic pages 28 includes one or more integral hinge tubes 19 which fit over a hinge pin 20 (also shown in Fig 4) in order to allow the pages to rotate. The hinge tubes 19 of each page together make up the overall hinge 18 and take up a generally proportional amount of the entire length of the hinge. The integral hinge tubes 19 of each page enable the overall hinge 18 of the device to be substantially strong so that the hinge will not bend after normal use even when mounted in taller cabinets. Alternatively, a

traditional hinge mechanism, similar to that of a door hinge, which mounts separately at desired locations of a page can also be utilized. As mentioned previously, each of the pages includes a separately identifiable tab 30. Accordingly, the tabs can be marked or indexed so that sections of the magnetic pages device may categorized, for example, by family member, activity, etc.

Fig. 2 also illustrates one exemplary manner of mounting the magnetic pages device 10 within a cabinet 12. As shown the hinge pin 20 of the device is received within a top and bottom flange 40, where each flange is mounted, e.g., by adhesive or hardware, to a respective top and bottom surface (14, 16) of the cabinet and may also be used with a shim element 42 and bearing 44 for secure mounting. As would be understood by a person skilled in the art, the flanges 40 may also be recessed (or countersunk) within top or bottom surfaces of the cabinet if desired. The hinge pin 20 may additionally be inserted within a bearing 42 that is then received within each flange so as to stabilize and smooth the rotation of the device.

Fig. 3 shows a top view of the magnetic pages device 10. As can be seen, three separate pages 28 are included within the device. When the device is in a closed position, so that all of the pages are in close proximity to one another, the separation S between each of the pages is minimal, e.g., on the order of 1/8 inch. In one exemplary embodiment of the device, the pages 28, or portions of the pages themselves, may be made of, or include magnetic material within. In this way, when the device is in a closed position, the pages may adhere or attract to one another so that the entire device may be rotated as a single unit. Only a minimal amount of force would be required to separate one page from another. Such an arrangement could be implemented by way of alternating polarities on each side of a

magnetic page, i.e., so that each sheet or portion thereof is a magnet itself. Thus, opposite polarities on the reverse and front side of a page 28, for example, would attract on another. It would be understood that in such an implementation, certain magnets for affixing papers to the magnetic pages, depending on the polarity of the attaching surface, may be only
5 attachable to one side of a page. Alternatively, smaller magnets and latch plates such as those utilized for cabinet latches may be utilized on small portions of respective sides of the magnetic pages so that all pages 28 of the device may be adhered to one another magnetically.

As would be understood, the separation between the pages 28 of the magnetic
10 pages device 10 may be made to be more or less for a particular device depending on the application within a household. That is, some households may prefer to have a greater nominal distance of separation S between pages 28 in order to enable items of greater width, e.g., magnets, to be utilized or displayed. Referring to Fig. 4, if a greater separation were required between pages than a flat page and corresponding hinge tube can accommodate,
15 then the joint between the hinge tube (or other hinge device) and page may be offset at a desired angle A , e.g., 30 or 45 degrees, so as to provide a greater clearance between adjacent pages.

Referring to Fig. 5, a detailed view of one embodiment of a mounting methodology for the magnetic pages device is shown. As discussed previously, the hinge pin of the device
20 may be received within a flange housing 40 or bearing housing such as that of NPRG-4 material. A Self-Aligning Self-Lubricating narrow spherical bearing 44, such as, Boston Gear NPRG-4 or other like product, may fit onto the hinge tube wherein the combination is received within the flange housing. As another alternative, as shown in Fig.6 the hinge pin 50

(or combination of hinge pin and hinge tube) may include one or more suitable springs 52 and be spring loaded in a similar fashion to some window shades so that the magnetic pages device may be easily inserted and removed from a cabinet without, for example, having to unscrew screws from the flange housing.

5 In other embodiments of the present invention, the device may also be mounted to the door of a cabinet with suitable hardware. In such a case, other types of flange housing hardware that are mountable on, and protrude outwardly from the door would be utilized. Such an arrangement, where the device is mounted to the door achieves the same overall result as if the device were mounted inside the cabinet. In this case the device and
10 accompanying hardware would be positioned so that the device fits within the space available within a cabinet between the cabinet door and the corresponding shelves.

The foregoing description merely illustrates the principles of the invention. It will thus be appreciated that those skilled in the art will be able to devise various arrangements, which, although not explicitly described or shown herein, embody the principles of the
15 invention, and are included within its spirit and scope. Furthermore, all examples and conditional language recited are principally intended expressly to be only for instructive purposes to aid the reader in understanding the principles of the invention and the concepts contributed by the inventor to furthering the art, and are to be construed as being without
20 limitation to such specifically recited examples and conditions. Moreover, all statements herein reciting principles, aspects, and embodiments of the invention, as well as specific examples thereof, are intended to encompass both structural and functional equivalents thereof. Additionally, it is intended that such equivalents include both currently known

equivalents as well as equivalents developed in the future, i.e., any elements developed that perform the same function, regardless of structure.

In the claims hereof any element expressed as a means for performing a specified function is intended to encompass any way of performing that function. The invention as
5 defined by such claims resides in the fact that the functionalities provided by the various recited means are combined and brought together in the manner which the claims call for. Applicant thus regards any means which can provide those functionalities as equivalent as those shown herein. Many other modifications and applications of the principles of the invention will be apparent to those skilled in the art and are contemplated by the teachings
10 herein. Accordingly, the scope of the invention is limited only by the claims appended hereto.